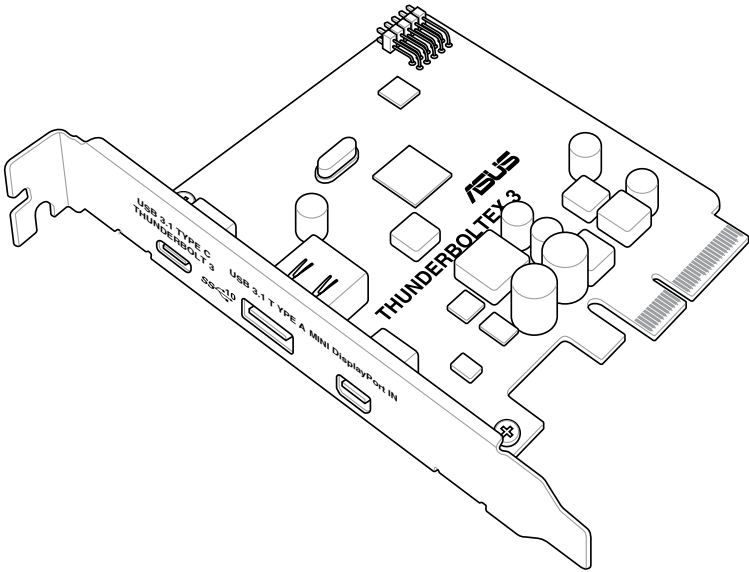


# ThunderboltEX 3 User Guide



E11461  
First Edition  
April 2016

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## Welcome!

Congratulations and thank you for buying an ASUS ThunderboltEX 3 card!

The ASUS ThunderboltEX 3 card provides Thunderbolt™ connection to other Thunderbolt-enabled devices. Use this card to quickly transfer native PCIe and DisplayPort protocols between a PC and Thunderbolt™ devices.

## Features

Your ASUS ThunderboltEX 3 card features a Thunderbolt™ 3 port that supports Thunderbolt™ 3 technology and a DisplayPort that supports DisplayPort 1.2 specifications. The Thunderbolt™ 3 port provides 40 Gb/s bi-directional bandwidth and incorporates DisplayPort 1.2 support enabling transfer and display of 4K video files simultaneously. The Thunderbolt™ 3 port also allows you to connect up to six Thunderbolt-enabled devices in a daisy-chain configuration using Thunderbolt™ cables.

## Package contents

Check your package for the following items:

- 1 x ThunderboltEX 3 card
- 1 x mini DisplayPort to DisplayPort cable
- 1 x ASUS TB\_Header cable
- 1 x User guide
- 1 x Support CD



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If any of the above items is damaged or missing, contact your retailer.

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## ThunderboltEX 3 specifications summary

|                            |   |
|----------------------------|---|
| <b>Chipset</b>             | Intel® Thunderbolt™ 3 Controller  |
| <b>External Connectors</b> | 1 x Thunderbolt™ 3 port (Type-C)<br>- up to 40 Gbps for Thunderbolt devices<br>- up to 10 Gbps for USB 3.1 devices<br>- up to 12V/3A, 36W charging support<br>1 x USB 3.1 port (Type-A, supports up to 10 Gbps)<br>1 x 9-pin TB header  |
| <b>Interface</b>           | PCI Express 3.0 x4 (compatible with PCI Express x16/x8/x4 slots)  |
| <b>VGA</b>                 | Supports DisplayPort 1.2 with max. resolution 4096 x 2304@60/24Hz   |
| <b>Accessories</b>         | 1 x mini DisplayPort Cable (links graphics output from motherboard's or discrete graphics card's DisplayPort to the mini DisplayPort IN port on the ThunderboltEX 3 card)<br>1 x ASUS TB header cable (connects ASUS motherboard's TB header with ThunderboltEX 3 card's TB header) |
| <b>Compatible Models</b>   | - X99-DELUXE II<br>- Z170-AR<br>* Refer to a qualified motherboard vendor for up-to-date compatible models.   |
| <b>Operating System</b>    | Windows® 7 (32-bit & 64-bit) / Windows® 8 (64-bit) / Windows® 8.1 (64-bit), Windows® 10 (64-bit)  |
| <b>SDVD</b>                | Thunderbolt™ 3 Driver inside  |
| <b>Form Factor</b>         | 3.35 in. x 3.94 in. (8.5 cm x 10 cm)  |



Specifications are subject to change without notice.

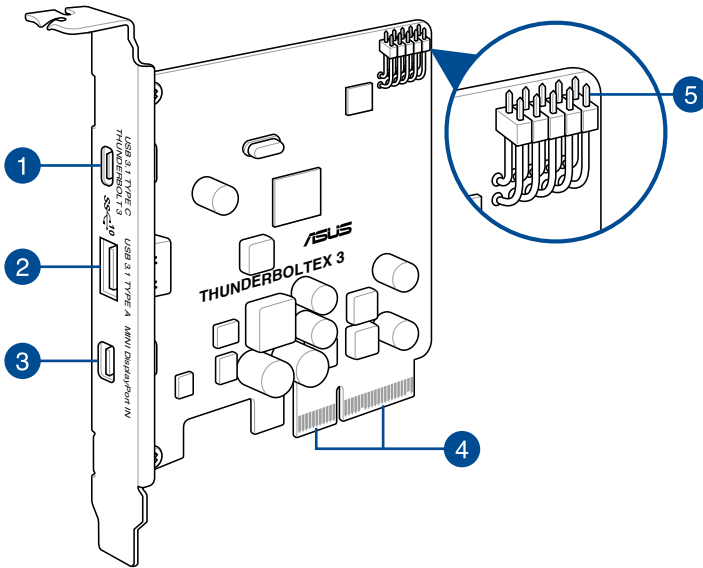


- Use only Thunderbolt™ technology-enabled devices that passed Intel® validation to ensure optimum performance and compatibility with your ThunderboltEX 3 card.
- Ensure your monitor complies with DisplayPort 1.2 specifications if you want to connect them in a daisy-chain configuration using the Thunderbolt™ 3 port.

## DisplayPort 1.2 specifications

| Display Resolution (standard 60 frames per second refresh rate) | Maximum Number of Monitors based on DisplayPort 1.2 Bandwidth |
|---|---|
| 1680 x 1050 (WSXGA)   | 5   |
| 1920 x 1080 (1080p)<br>or 1920 x 1200                           | 4   |
| 2560 x 1600 (WQXGA)   | 2   |
| 3840 x 2160 (UltraHD, 4K)<br>or 4096 x 2160 (4K x 2K)           | 1   |

## ThunderboltEX 3 card layout



- 
- 1 USB 3.1 Type-C / Thunderbolt™ 3 port
  - 2 USB 3.1 Type-A port
  - 3 Mini DisplayPort in port
  - 4 PCIe 3.0 x4 interface
  - 5 TB\_Header
- 

## Installing the ThunderboltEX 3 driver



We highly recommend that you install the Thunderbolt™ 3 driver first before installing the ThunderboltEX 3 card.

To install the driver, place the Support DVD into the optical drive then follow on-screen instructions to finish the installation.

## Installing the ThunderboltEX 3 card



- For best performance, connect your ThunderboltEX 3 card to a PCIe 3.0 slot. For more information on the correct PCIe slot to use, refer to the section **ThunderboltEX 3 card recommended configuration** of this user guide.
- The following illustrations are for reference only. The motherboard layout may vary with models, but the installation steps remain the same.

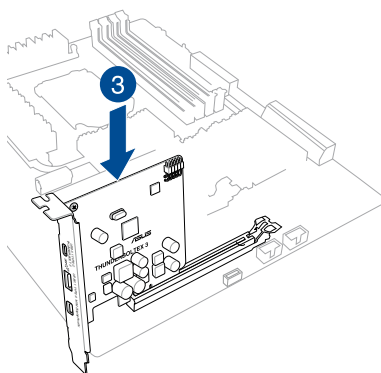
To install the ThunderboltEX 3 card:

1. Shut down your PC.
2. Open the chassis.

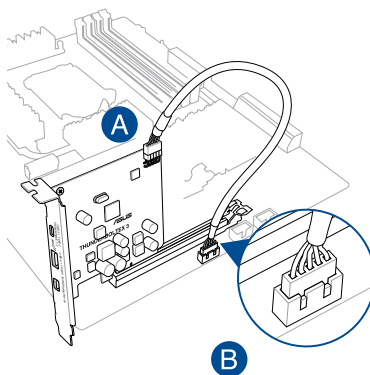


Ensure that no cables or peripherals are blocking the PCIe 3.0 slot.

3. Align and insert the ThunderboltEX 3 card into a PCIe 3.0 slot until it is securely seated in place.



4. Connect the ASUS TB header cable to the ThunderboltEX 3 card (A) and to the TB\_Header port on the motherboard (B).



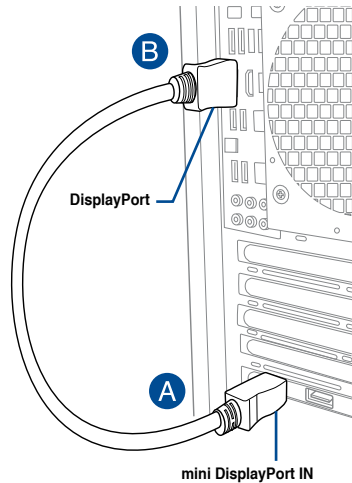
5. Connect the DisplayPort cable to the ThunderboltEX 3 card's Mini DisplayPort IN port (A) and to the DisplayPort on the motherboard's I/O port (B).



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You can also connect the DisplayPort cable to the DisplayPort on a discrete VGA card's I/O port.

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6. Close the chassis.
7. Turn on the PC.
8. Connect the Thunderbolt™ cable from your Thunderbolt-enabled device to the Thunderbolt™ 3 port on the ThunderboltEX 3 card.



- The Thunderbolt™ cable is not bundled with the ThunderboltEX 3 package. Use the Thunderbolt™ cable that came with your Thunderbolt-enabled device when connecting to the Thunderbolt™ 3 port on your ThunderboltEX 3 card.
  - You can connect a USB 3.1 Type-C to Thunderbolt™ adapter, then connect the Thunderbolt™ cable from your Thunderbolt-enabled device to the Thunderbolt™ 3 port on the ThunderboltEX 3 card.
  - ThunderboltEX 3 card is backward compatible with the previous Thunderbolt™ technology.
  - For the recommended daisy-chain configurations or connections, refer to the section **Connecting to external devices** of this user guide.
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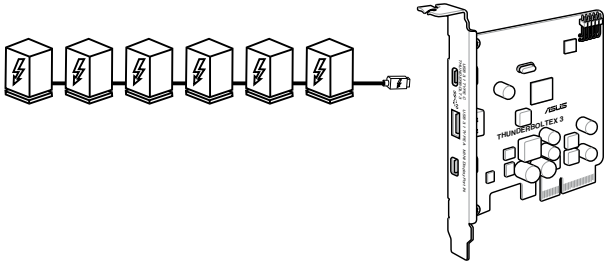
# Connecting to external devices



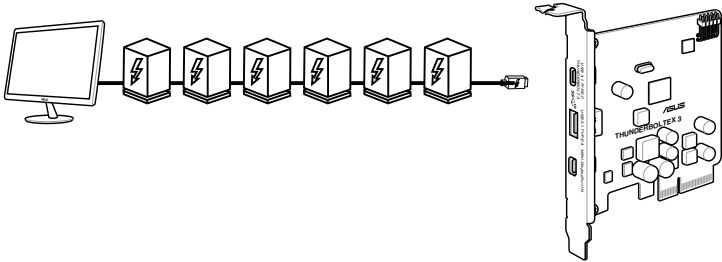
Before connecting any Thunderbolt-enabled devices in a daisy-chain configuration, ensure that it is equipped with one Thunderbolt™ IN port and one Thunderbolt™ OUT port.

You can refer to the following illustrations for the recommended daisy-chain connections:

## Six (6) Thunderbolt™ devices



## Six (6) Thunderbolt™ devices + one (1) 4K DisplayPort monitor





## Notices

### Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



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The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

---

## IC: Canadian Compliance Statement

Complies with the Canadian ICES-003 Class B specifications. This device complies with RSS 210 of Industry Canada. This Class B device meets all the requirements of the Canadian interference-causing equipment regulations.

This device complies with Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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- (2) cet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité de l'appareil.

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VCCI-B

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DO NOT throw the motherboard in municipal waste. This product has been designed to enable proper reuse of parts and recycling. This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

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DO NOT throw the mercury-containing button cell battery in municipal waste. This symbol of the crossed out wheeled bin indicates that the battery should not be placed in municipal waste.

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## ASUS contact information

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Fax +86-21-5866-8722, ext. 9101#  
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Telephone +1-812-282-2787  
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Web site <http://www.asus.com/de>  
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#### **Technical Support**

Telephone +49-2102-5789555  
Support Fax +49-2102-959911  
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Per FCC Part 2 Section 2.1077(a)



**Responsible Party Name:** **Asus Computer International**

**Address:** **800 Corporate Way, Fremont, CA 94539.**

**Phone/Fax No:** **(510)739-3777/(510)608-4555**

hereby declares that the product

**Product Name :** **Motherboard ADD ON CARD**

**Model Number :** **THUNDERBOLTEX 3**

Conforms to the following specifications:

FCC Part 15, Subpart B, Unintentional Radiators

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Representative Person's Name : Steve Chang / President

A handwritten signature in blue ink that reads "Steve Chang". The signature is written in a cursive style and is placed over a light purple rectangular background.

Signature :

Date : Mar. 10, 2016

Ver. 140331